

05/12/14 Agenda:

- Calendar for the rest of the year
- Section 10.1 - Parts of a Circle & Tangents
- Homework
 - Worksheet 1 - Parts of a Circle & Tangents

Section 10.1 - Parts of a Circle & Tangents
Target 12A

May 12, 2014

Goal: Apply the definition of a circle and related terms: radius, diameter, center, chord, tangent, secant.

Definitions/
Parts of a
Circle:

Circle: The set of all points equidistant from a given point.

Center: The given point.

Radius (Radaii): The distance from the center to the circle.

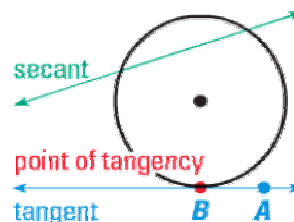
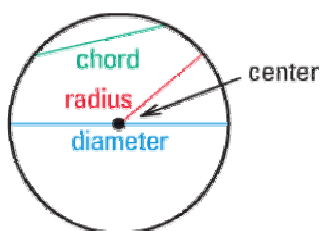
Chord: A segment with endpoints on the circle.

Diameter: A chord that goes through the center.

Tangent: A line that touches a circle EXACTLY ONCE.

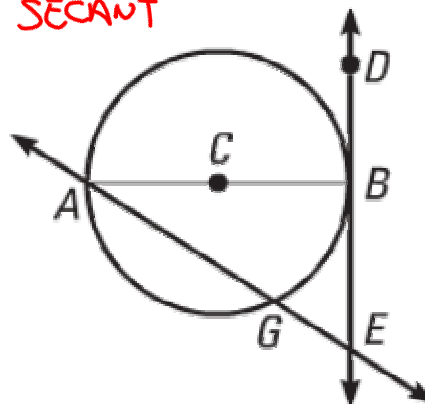
Point of Tangency: Where a tangent line touches the circle.

Secant: A line that touches a circle EXACTLY TWICE.



Tell whether the line, ray, or segment is best described as a *radius*, *chord*, *diameter*, *secant*, or *tangent* of $\odot C$.

- a. \overline{AC} **RADIUS** b. \overline{AB} **DIAMETER, CHORD**
c. \overrightarrow{DE} **TANGENT** d. \overleftrightarrow{AE} **SECANT**



Section 10.1 - Parts of a Circle & Tangents
Target 12A

May 12, 2014



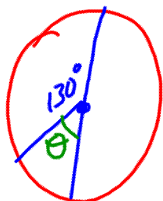
Diameter & Radius:

CIRCLE = 360°
HALF CIRCLE = 180°

$$d = 2r \quad \frac{d}{2} = r$$

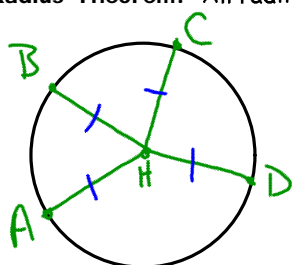
$$r = 6 \quad d = 12$$

$$r = 9 \quad d = 18$$



Radius Theorem: All radii are congruent.

$\odot H$

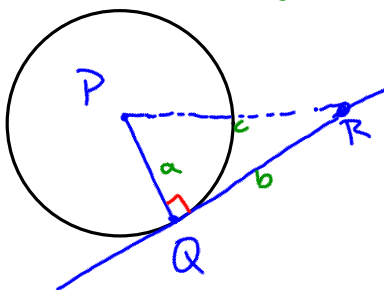


$$\overline{AH} \cong \overline{BH} \cong \overline{CH} \cong \overline{DH}$$

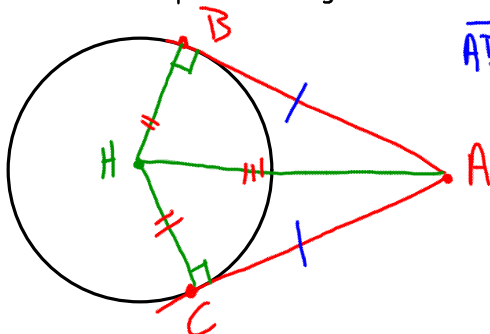
Radius-Tangent Theorem: Any radius drawn to a point of tangency is perpendicular to that tangent.

$$a^2 + b^2 = c^2$$

$$\overline{PQ}^2 + \overline{QR}^2 = \overline{PR}^2$$



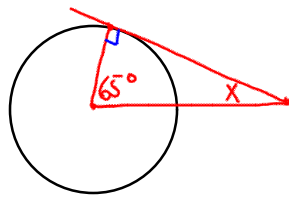
Tangent-Tangent Theorem: Any two tangents with a common external point are congruent.



$$\overline{AB} \cong \overline{AC}$$

Section 10.1 - Parts of a Circle & Tangents
Target 12A

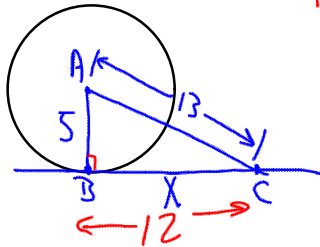
May 12, 2014



WHAT IS THE MEASURE OF ANGLE X?

$$X + 65 + 90 = 180$$

$$X = 25^\circ$$



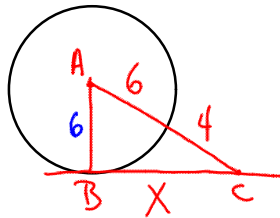
$$\overline{AB}^2 + \overline{BC}^2 = \overline{AC}^2$$

$$5^2 + X^2 = 13^2$$

$$25 + X^2 = 169$$

$$X^2 = 144$$

$$X = 12$$



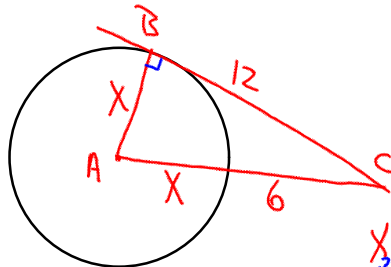
$$\overline{AB}^2 + \overline{BC}^2 = \overline{AC}^2$$

$$6^2 + X^2 = 10^2$$

$$36 + X^2 = 100$$

$$X^2 = 64$$

$$X = 8$$



$$\overline{AB}^2 + \overline{BC}^2 = \overline{AC}^2$$

$$X^2 + 12^2 = (X+6)^2$$

$$X^2 + 144 = X^2 + 12X + 36$$

$$\begin{array}{r} -X^2 \\ \hline 144 \\ -36 \\ \hline 108 = 12X \\ \hline 12 \end{array}$$

$$9 = X$$

$$(X+6)^2$$

$$(X+6)(X+6)$$

$$X^2 + 6X + 6X + 36$$

$$X^2 + 12X + 36$$

$$\begin{array}{r|l} X+6 & \\ \hline X & X^2 + 6X \\ +6 & +6X + 36 \\ \hline \end{array}$$